FLOOD RISK ASSESSMENT

PROPOSED RESIDENTIAL CARE HOME
GOODFELLOWS SCHOOL
SPALDING COMMON
SPALDING
LINCOLNSHIRE
PE11 3AS



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FLOOD RISK ASSESSMENT FOR PROPOSED RESIDENTIAL CARE HOME, GOODFELLOWS SCHOOL, SPALDING COMMON, SPALDING, LINCOLNSHIRE. PE11 3AS

INTRODUCTION

The Government has placed increasing priority on the need to take full account of the risks associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework (NPPF) March 2012, which identify how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding.

Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change.

The Environment Agency's flood maps show areas that are at risk, from fluvial and tidal flooding. These maps show the limits of the flood plain of the area which could be affected by flood events, over topping or breaching of flood defences. They are based on the approximate extent of floods with a 1% annual probability of exceedance (1 in 100 year flood) for rivers and 0.5% annual probability of exceedance (1 in 200 years flood) for coastal areas under present expectations or the highest known flood. However they do not take into account of the presence of defences or the likelihood that flood return intervals will be reduced by climate change.

This Flood Risk Assessment has been prepared in support of the planning application and considers the risk of flooding from fluvial and tidal sources. It also considers the risks of localised flooding due to inadequate Foul and Surface Water Sewers, Failure of Reservoirs, Water Main pipe bursts, Sewer Blockages, Pump Failures or High Ground Water Table etc.

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APPLICATION SITE

The site is located at Spalding Common, Spalding Lincolnshire PE11 3AS within the administrative area of South Holland District Council. **Plan 1**

The site was previously used as the Goodfellows School & school house, with a site area 0.62 Hectare or thereabouts.

The current application is to erect a three storey 63-bed residential care home. **Plans 2, 3, & 4.**

The Site would be classed as Non Major Development applying the Town & Country Planning (Consultation) (England) Direction 2009 as the site is to be developed is less than 1 hectare.

The National Grid Reference for the middle of the site is TF23310 20458.

The National Planning Policy Framework Technical Guidance NPPF defines three levels of flood risk depending upon the annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)

Zone 2 – Medium Probability (0.1 – 1.0%

Zone 3 – High Probability (>1.0%)

The proposed development site is shown to be within Flood Zone 3a 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences, and as defined in Table 1 of NPPF.

Table 1: Flood Zones Definition (Ignoring the presence of defences)

Zone 3a - high probability

Definition
This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Appropriate uses
The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.

The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

Flood risk assessment requirements
All development proposals in this zone should be accompanied by a flood risk assessment.

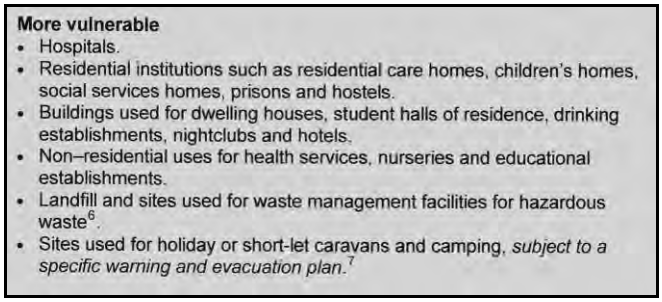
Policy aims
In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;
- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPF the proposed residential development

is classified as “More Vulnerable”, with Table 1 of NPPF stating that such uses are appropriate in this zone subject to the Exception Test.

Table 2: Flood Risk Vulnerability Classification



More vulnerable

- Hospitals.
- Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non–residential uses for health services, nurseries and educational establishments.
- Landfill and sites used for waste management facilities for hazardous waste[6].
- Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan.*[7]

From the topographical survey the site level varies from 2.21mODN in the southern area to over 3.00mODN in the northern area of the site. Floor levels for the existing building are 2.50mODN and the mid-level on Spalding Common Road is higher at 3.35mODN. Plan

It is therefore proposed that the ground floor for the new care home be 500mm above the existing ground floor level for the school building, at 3.00mODN, which will still ensure that the finished floor level of the proposed building is below the level of the adjacent road.

Environment Agency

The Environment Agency is responsible for reducing the risk of flooding from designated main rivers and from the sea.

DRAINAGE AUTHORITIES

The following potential sources of flooding affecting the development site have been identified as:

- From the River Welland
- Welland & Deepings Internal Drainage Board system

The Flood Zone Maps identify river catchments over 3 sq. km. These maps are a theoretical estimate of areas that could be inundated should no defence exist. In practice current standards of protection would result in flood envelopes substantially less than shown by these maps. The maps make no allowance for local, site specific features.

The flood zone maps show that the site of the proposed development is considered at risk from flooding. These maps indicate that the area would be flooded without flood defences, which are in place, (with an annual probability of more than 0.5% i.e. return frequency of less than 1 in 200 years for tidal flooding or more than 1.33% return frequency of less than 1 in 100 years for fluvial flooding). **Map 1**

The National Flood Risk Assessment Map shows that the site is at medium risk of flooding. Medium means that each year, this area has a chance of flooding of less than 1 in 30 (3.3%) but greater than or equal to 1 in

100 (1%). This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail. **Map 2**

RIVER WELLAND

The River Welland lies 120m east of the site and the Left bank of the River Welland is formed by an earth bank which is provided with a soak dyke on the landward toe. The right bank to the river is at a slightly lower level and of less proportions and this forms the embankment to the Cowbit Washlands which allows water to overtop to control the levels in the river from overtopping the left bank which consequently controls the river levels downstream during a high flow event. Further upstream there is a similar controlling flood storage washlands at Crowland. The standard of protection provided by these defences is for the 1 in 100 year flood event.

The following is an abstract from Table 6R & 7R SHSFRA

Location	Chainage (km)	Peak 1 in 100 year fluvial Flood level (mODN)		Peak I in 1000year fluvial Flood Level (mODN)		Left Bank Defence Crest Level (mODN)	Right Bank Defence Crest Level (mODN)
		2007	2115	2007	2115		
Little London Bridge	0.0	4.42	4.67	4.43	4.68	5.22	5.99
	0.5	4.45	4.67	4.47	4.68	6.16	6.18
	1.0	4.47	4.67	4.48	4.68	6.05	5.84
	1.5	4.48	4.67	4.49	4.68	6.17	5.66
	2.0	4.49	4.67	4.50	4.67	6.12	6.05

Taking the precautionary approach the Hazard Rating following a breach which in Flood Risk Assessment (FD 2320) Guidance for New Development Phase 2 R& D Technical Report these are classified as low <0.75, moderate 0.75 - 1.25, significant 1.25 - 2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

Flood Hazard value	Degree of flood hazard	Description	Indicative depth range
< 0.75	Low	Caution 'Flood zone with shallow flowing water or deep standing water'	Up to 0.25 m
0.75 – 1.25	Moderate	Danger for some (i.e. children) 'Danger: flood zone with deep or fast flowing water'	Up to 0.5 m
1.25 – 2.0	Severe	Danger for most 'Danger: flood zone with deep fast flowing water'	0.5 m to 3 m
> 2.0	Extreme	Danger for all 'Extreme danger: flood zone with deep fast flowing water'	0.5 m to over 3 m

HR = d x (v + 0.5) +DF

Where V = Flood flow velocity (m/sec)

D = Flood depth (m)

DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths

Flood depth (m)	All areas (rural and urban)
≤ 0.25	0.5
> 0.25	1

For the degree of Flood Hazard to be classified as low HR has to be <0.75

South Holland District Council

In order to inform the process of risk assessment and site selection the District Council commissioned Haskoning UK Ltd Consultants to prepare a Strategic Flood Risk Assessment in December 2002.They have carried out an update of this report and this report was published in January 2010

This Flood Risk Assessment has taken the results of the updated South Holland Strategic Flood Risk Assessment (SHSFRA) into account in its findings.

It was found that the actual risk from primary sources of flooding (taken as being rivers and the sea) was assessed as being the product of:

- Medium probability (assigned because the standards of the primary defences are variable) and

- Low consequence (assigned because of the District's generally rural nature and because any urban flooding is likely to be shallow with minimal impact).

The findings reflect the considerable protection afforded to the area by coastal and tidal & fluvial flood defences and by the extensive well organised system of lowland IDB fluvial drainage.

The computer modelling used in the SFRA to produce the Hazard, depth and velocity maps simulated the spread of flood waters over the land and allowed for the presence of locally raised features such as road embankments etc. The maps produced by the Environment Agency took a more precautionary approach.

The potential flooding consequences shown on this map relate to flooding from the sea, main rivers and Internal Drainage Board systems taking into account the presence of current flood risk management measures such as flood defences.

The consequences designated as being an Actual Risk arise from direct overtopping of defences, where this would occur, together with assumed breach failure of some defences. Breach failure has been assumed to occur in places where the freeboard between peak, sea or river water level and the defence crest level is less than the minimum desirable for structural security of the defence.

From the Actual Peak Hazard Spalding - Year 2115 1% Fluvial / 0.5% Tidal Event Probability, Actual Flood Depth Spalding - Year 2115 1% Fluvial / 0.5% Tidal Event and Actual Flood Velocity Spalding - Year 2115 1% Fluvial / 0.5% Tidal Event Probability maps from the update of strategic flood risk assessment for South Holland District Council show that the site is not affected from any breach to the flood defences. **Map 2, Map 3 & Map 4**

The Residual Peak Depth Spalding - Year 21150.1% Event Probability Map shows that approximately 95% of the site is within a flood depth of 0 – 0.5m. **Map 5**

Welland & Deepings Internal Drainage Board

The proposed development site is located within Catchment area of Welland & Deepings Internal Drainage Board. The Board is responsible to operate and maintain the arterial fluvial system. **Map 6**

The Boards Drains which are close to the site are:-

Hills Drain
This watercourse flows westwards from the railway line and outfalls into the South Drove Drain for a distance of approximately 1.3km. The design flood level at the outfall is 0.00mODN and at the railway 1.06mODN.

Fantail Drain
This watercourse flows in a north-westerly direction from the railway line to its outfall into Hills Drain The design flood levels are 0.60mODN at Hills Drain and O.69mODN at the railway line.

With the proposed ground floor level being 3.00mODN the site will not be affected by flooding from these sources.

FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

- Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak into the ground or enter the drainage system. However with the natural topographic nature of the ground being flat, with no high ground around the site this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity following the natural land contours. The properties are also raised 500mm above the average ground level. The updated SFRA concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk.

- The area is not known to suffer from any groundwater problems and therefore is taken as having no strategic significance as regards to flood risk.

- Flooding from sewers can occur from over loading from heavy rainfall caused by blockages or having inadequate capacity. The resulting back pressure could cause foul sewage to flow from manholes which would flow over areas of the carriageway at a lower level and be contained within the confines of the kerb lines following the natural land contour to the south-west. The Updated SFRA concluded that flooding from sewers is limited to minor isolated cases and is not of strategic significance as regards to flood risk.

- Non natural or artificial sources of flooding such as reservoirs, lakes or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. The Cowbit Washlands are close by which could affect the site, which is designated as a large raised reservoir under The Reservoirs Act 1975. The flood embankments to these are the same as those to the River Welland.

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF he site would fall into Zone 3a (High Probability) as the site is shown to be within the tidal flood plain as shown on the Environment Agency's Flood Map without defences in place.

However the results of the updated SHSFRA shows that the site is located within a low/medium probability flood zone but the area is reliant on protection by flood defences providing a standard of protection of 1 in 100 years return period.

The ground floor level has been set at 3.00mODN which is 0.5m above the site's lowest ground level.

With the properties having lounges and coffee rooms at first floor and above these provide a safe haven for the ground floor residents to retreat to and await the flood level to recede or to be rescued.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPF, the proposed residential development is classified as "More Vulnerable", with Table 1 of NPPF stating that such uses are appropriate in this zone (as summarised in Table 3 NPPF).

TABLE 3: Flood risk vulnerability and flood zones 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Sequential Test

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first.

The Planning Hub are preparing a Sequential Test Assessment and for the purposes of this report it is assumed that the Test is passed.

CLIMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events as

both tidal and fluvial flooding.

The annual sea rise due to climate change is given in the NPPF and the recommended contingency allowances are stated in Table 4.

TABLE 4: Recommended contingency allowances for net sea level rises

	Net sea level rise (mm per year) relative to 1990			
	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
East of England, east midlands, London, south-east England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South-west England	3.5	8.0	11.5	14.5
North-west England, north-east England (north of Flamborough Head)	2.5	7.0	10.0	13.0

The site is not affected by tidal flooding.

Table 5: Recommended National Precautionary Sensitivity Ranges for Peak Rainfall Intensities. Peak River Flows, Offshore Wind Speeds and Wave Heights.

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall intensity	*+5%*	*+10%*	*+20%*	*+30%*
Peak river flow	*+10%*	*+20%*		
Offshore wind speed	*+5%*		*+10%*	
Extreme wave height	*+5%*		*+10%*	

The effect of global warming on fluvial flood peaks is given in Table 5. It is expected that the overall effect up to 2025 will result in an increase of rainfall of 5%, 2025-2055 10%, 2055-2085 20% and 2085-2115 of 30% with Peak River flows increasing by 10% and from 2085-2115 by 20%.

DRAINAGE STATEMENT

Surface Water Drainage

In accordance with the House of Commons Written Statement (HCWS161 – 18th December 2014) there is a requirement for SuDS to be incorporated in all developments classed as major developments, unless demonstrated to be inappropriate.

Section 2, Part H of the Building Regulations states a hierarchy of how surface water disposal should be managed. This hierarchy should be followed where practicable, and is listed below:

1) Infiltration (SUDS)
2) Watercourses
3) Public Sewers

The drainage strategy prepared by Construction Design Solutions (See separate Document) for the site is the preliminary overview and will be subject to the detailed design being undertaken when planning permission

and final layout has been determined. It is proposed to utilise infiltration techniques to reduce the storm water discharge from the proposed development in order to minimise the impact of the development on the surrounding area and to comply with EA guidelines, which require at least one workable solution for managing surface water.

There are storm water collection points on and around the existing buildings in the form of rainwater pipes and gullies. The former school playground has a concrete “slot” type drainage channel along the southern boundary of the site. **Plan 6**

None of the storm collection points were able to be traced. It is therefore assumed that these discharge to an infiltration system.

Infiltration

A ground investigation has been completed and percolation values calculated for two locations within the Site. To the north the better percolation values were found with k = 5.33 x 10^{-5} m/s. It is expected that Infiltration can be used as the method of disposal of surface water from all areas of the development, as detailed below, subject to the relevant approvals. For robustness and, to ensure no overland exceedence flows, all infiltration structures will be designed to the 100 year plus 30% climate change standard:

Curtilage Roof areas can, for example discharge to individual shallow cellular soakaways. The base of the soakaway structure would be set so as to be at least 1m above the water table and soakaways would need to be sited 5m away from buildings. These can be finalised at detailed design stage. A typical soakaway needs to comply with paragraph 9 of the Technical Guide to the NPPF 2012, which needs to be monitored and maintained to ensure it will continue to function correctly for the lifetime of the development and prevent any increase in flood risk on or off site. It is however possible to incorporate source control (water quality)

Curtilage Driveway and Car Park can be constructed in permeable materials such as gravel, porous tarmac or porous block paving.

Miro drainage calculations were carried out and for a roof area 1300m^2 and external areas 900m^2 a storage volume of 85m^3 would be required.

There are no proposals to discharge surface water from the site to either a watercourse or to sewer.

Foul Water

Foul drains will be provided to serve the development and connected into the Anglian Water sewer serving the area similar to the existing arrangements. **Plan 7**

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

FLOOD PROTECTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works:-

- **Flood-resistance or proofing works**: - these try to reduce the amount of water actually entering a building.
- **Flood-resilient works: -** these reduce the amount of damage caused by water entering the building.

The proposed property will have the following resilient measures incorporated in the construction in accordance with "Improving the flood performance of new buildings" CLG (2007).

- The lowest ground floor level for the properties is to be raised 500mm above existing average ground level with a lowest level being 3.00mODN.

- Arrange for all service circuits at ground floor level to be routed at first floor level and where practical socket outlets, boilers etc. to be a minimum of 0.5m above the raised ground floor level.

- The owners of the property will register their property with the Environment Agency to receive automated early warnings of potential flood events.

CONCLUSION

- The proposed development site is shown to be within Flood Zone 3a 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.

- The site does have the protection of fluvial flood defences which are well maintained by the Environment Agency.

- Following a breach to the defences, the Actual Peak Hazard Spalding – Year 2115 1% Fluvial / 0.5% Tidal Event Probability and Actual Flood Depth Spalding – Year 2115 1% Fluvial / 0.5% Tidal Event Probability and Actual Flood Velocity Spalding – Year 2115 1% Fluvial / 0.5% Tidal Event Probability maps from the update of strategic flood risk assessment for South Holland District Council show that the site is not affected from any breach to the flood defences.

- However the Residual Peak Depth Spalding – Year 21150.1% Event Probability Map shows that approximately 95% of the site is within a flood depth of 0 – 0.5m. It is therefore proposed that the ground floor for the new care home be 500mm above the existing ground floor level for the school building at 3.00mODN which is above the predicted flood level in 2115..

- The Sequential and Exception Tests are considered to be passed for the proposed development.

- The Flood Risk Vulnerability Classification in Table 2 of NPPF the proposed residential development is classified as “More Vulnerable”, with Table 1 of NPPF Technical Guide stating that such uses are appropriate in this zone. However the results of the updated SHSFRA shows that the site is located within a low/medium probability flood zone but the area is reliant on protection by flood defences providing a standard of protection of 1 in 100 years return period.

- Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as outlined in the report

- Flooding from other sources is unlikely to affect the site.

Note:-

The Drainage Strategy prepared by Construction Design Solutions dated June 2015 must be read in conjunction with this report

APPENDIX

Map 1	Extract from Environment Agency Flood Zone Map
Map 2	NFRA Flood Map
Map 3	South Holland SFRA Actual Flood Hazard Spalding year 2115 1% Fluvial/0.5% Tidal Event Probability
Map 4	South Holland SFRA Actual Peak Depth Spalding year 2115 1% Fluvial/0.5% Tidal Event Probability
Map 5	South Holland SFRA Actual Peak Depth Spalding year 2115 1% Fluvial/0.5% Tidal Event Probability
Map 6	South Holland SFRA Residual Peak Depth Spalding - Year 21150.1% Event Probability Map
Map 7	Welland & Deepings IDB Drainage Map
Plan 1	Location Plan
Plan 2	Layout Plan
Plan 3	Ground Floor Layout Plan
Plan 4	First Floor Layout Plan
Plan 5	Topographical Survey
Plan 6	Existing Drainage Survey
Plan 7	Existing Drainage Notes
Plan 8	Anglian Water Sewer Records Plan
Plan 9	Proposed Drainage Philosophy

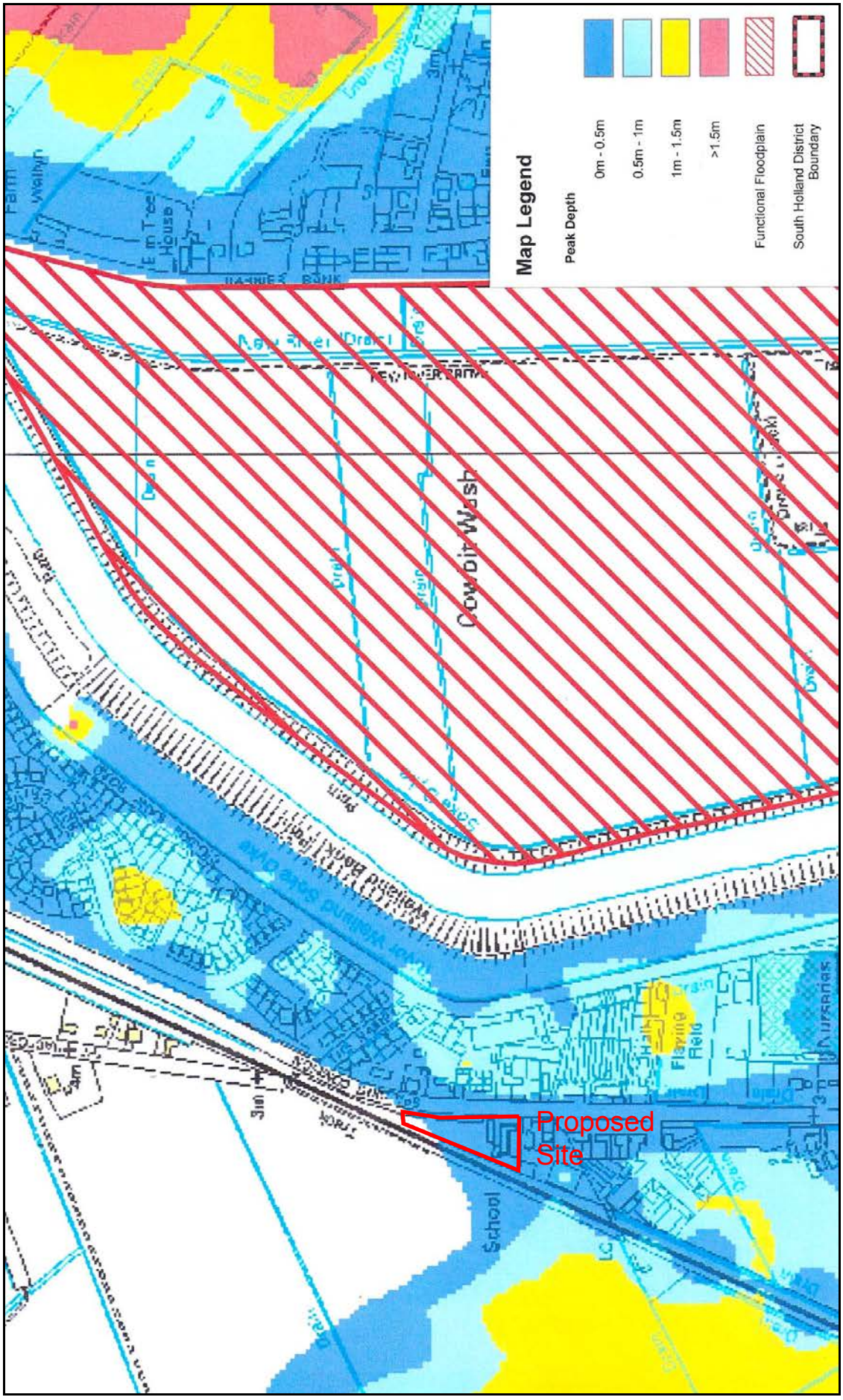
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Map 1

NFRA Flood Map

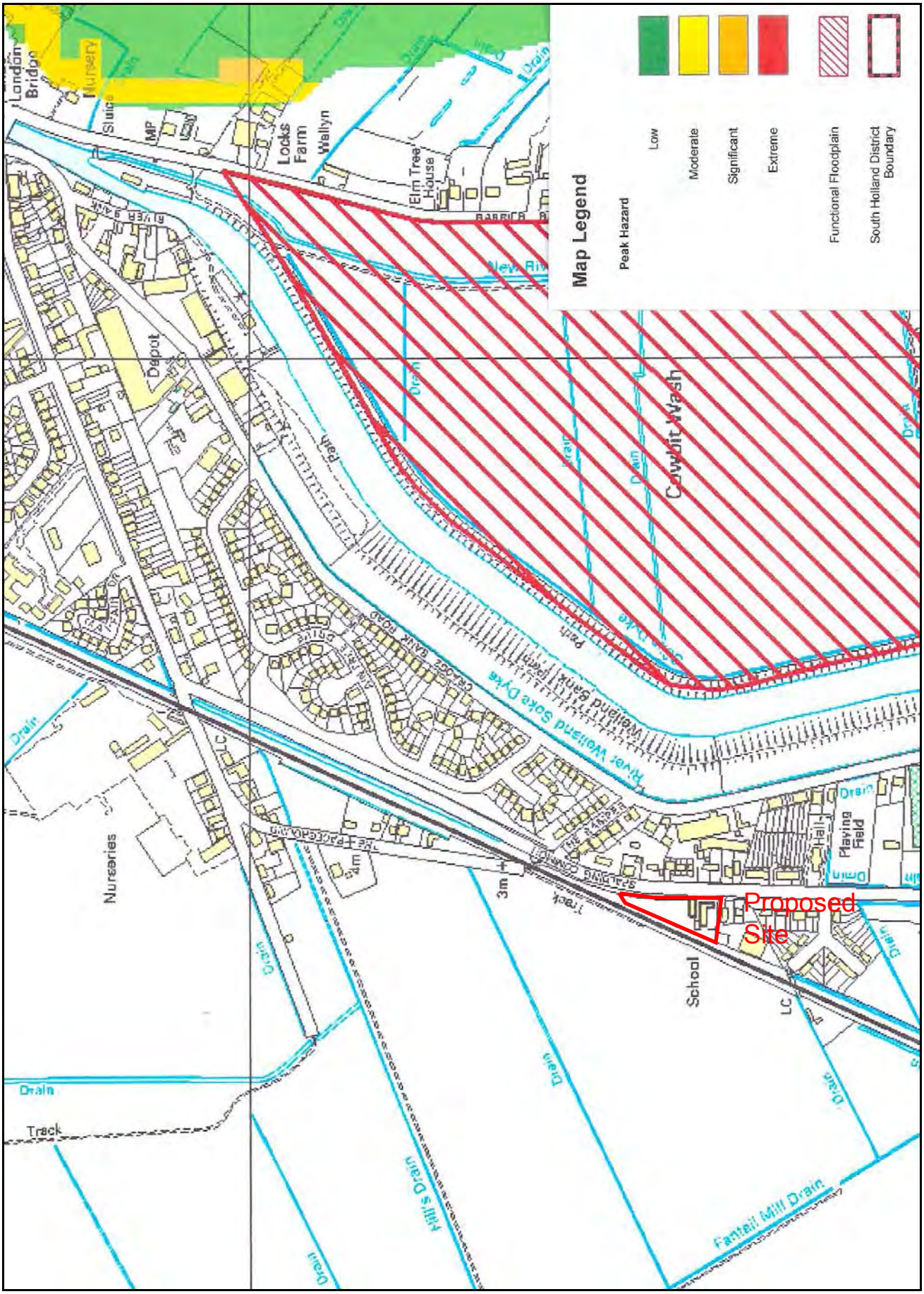
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Map 2



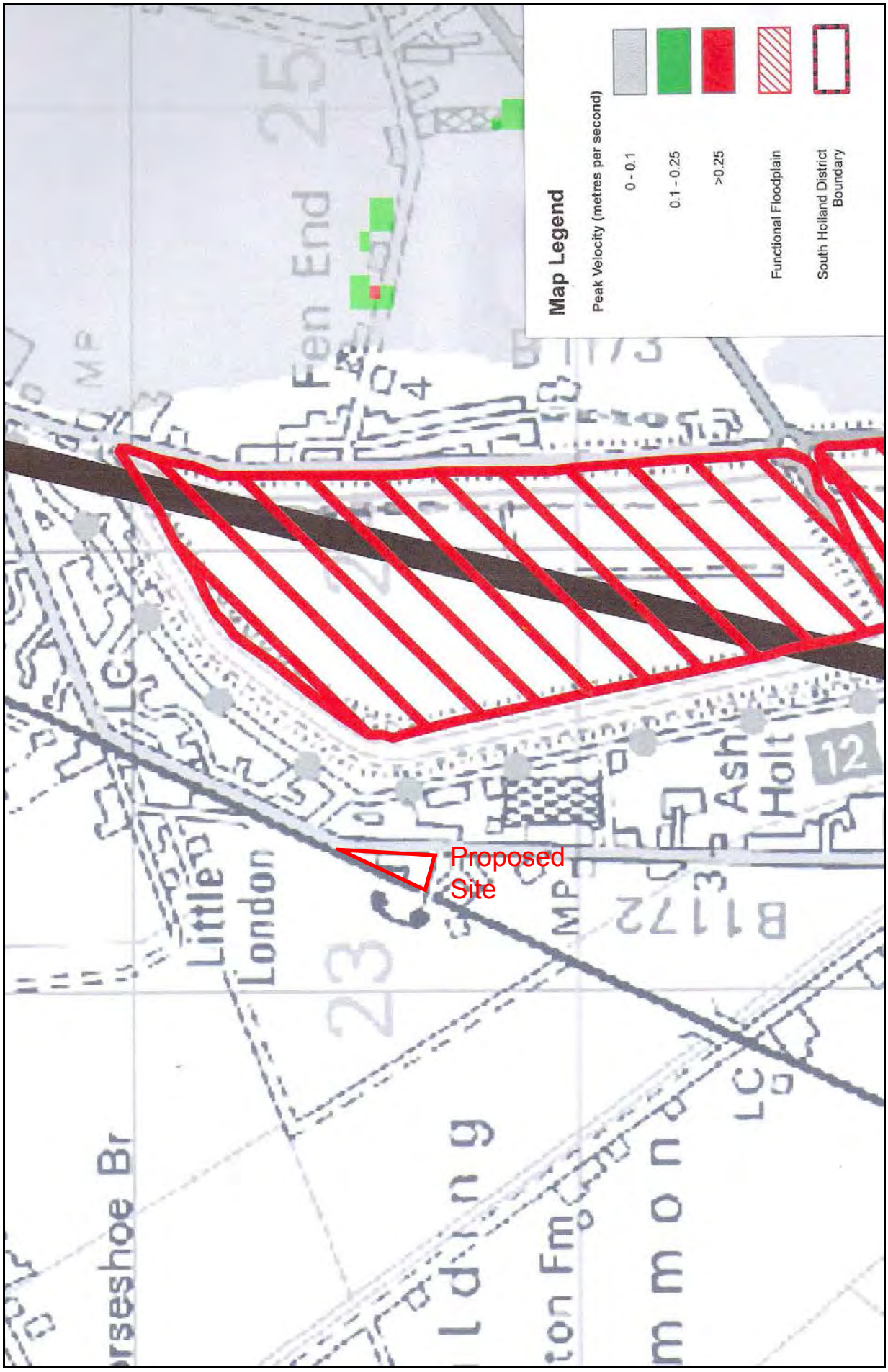
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Map 3



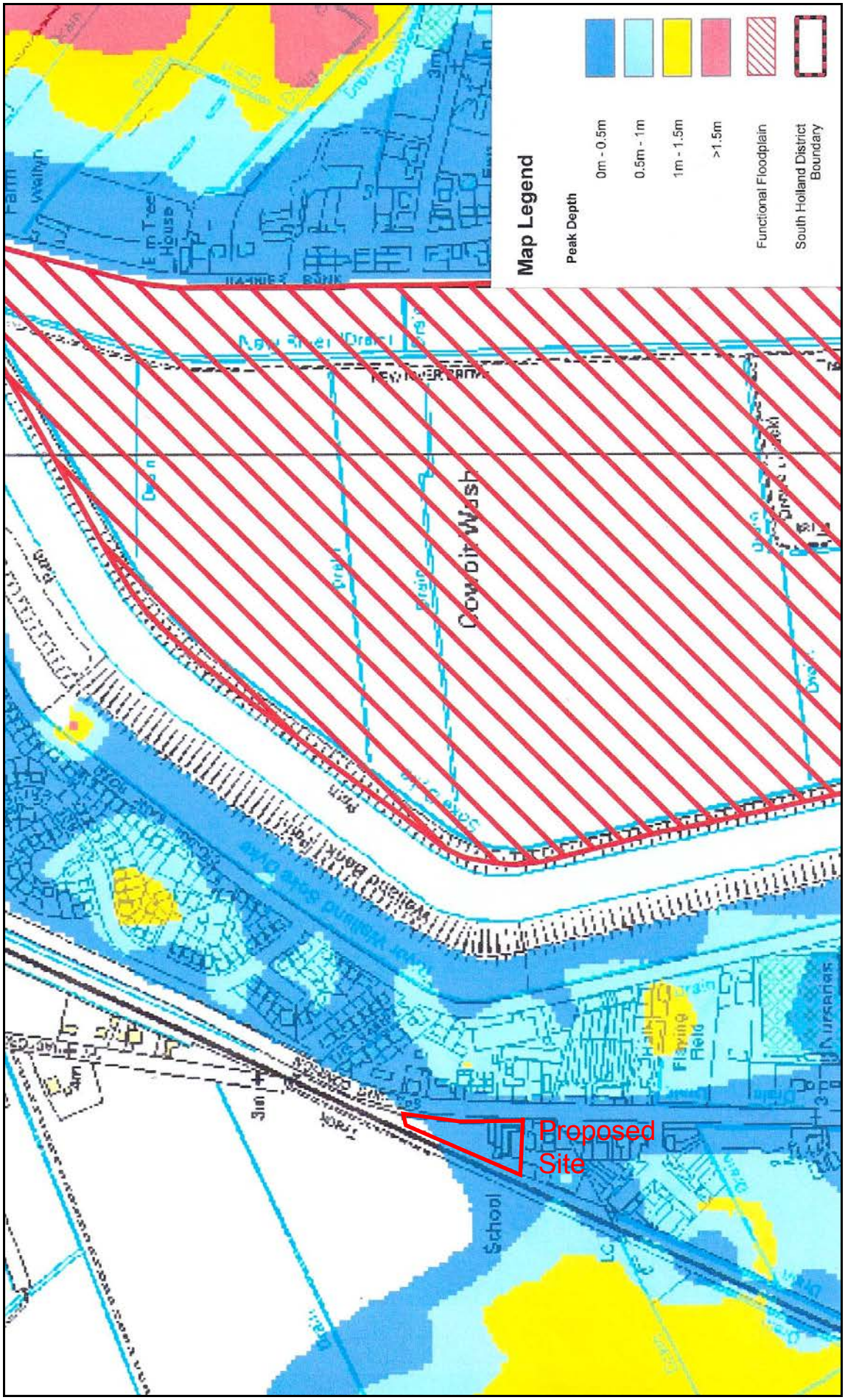
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Map 4



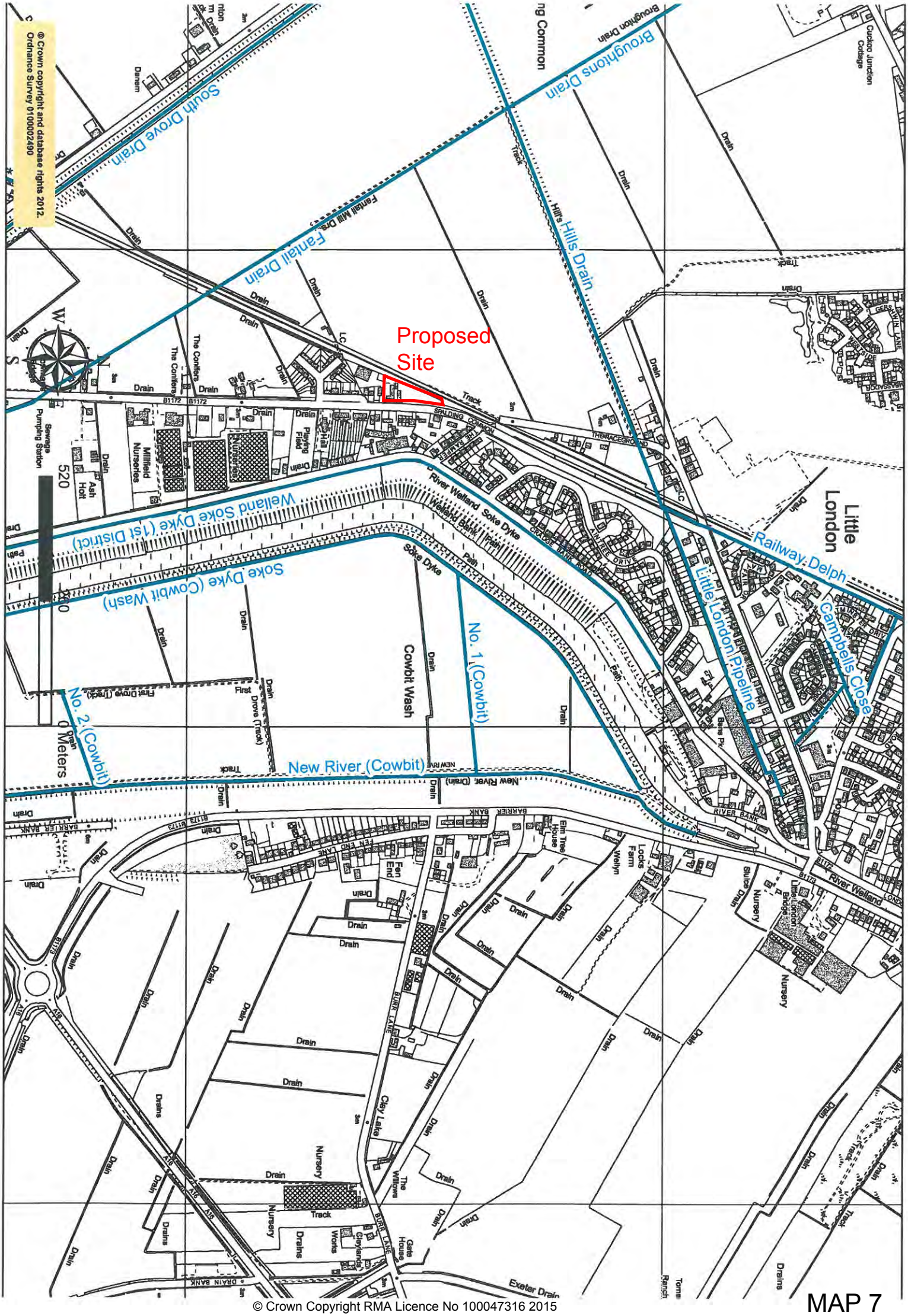
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Map 5

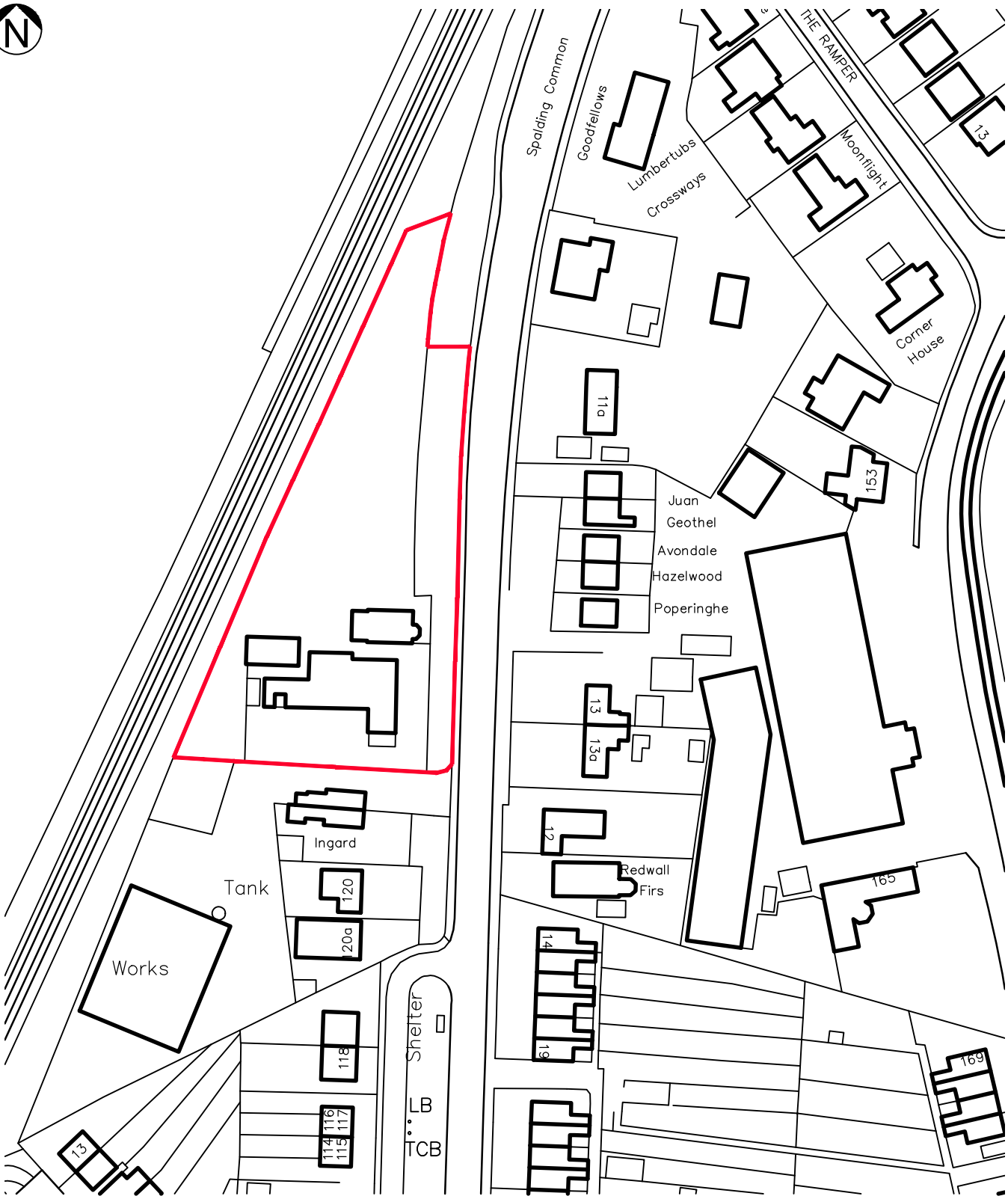


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Map 6


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South Drove Drain
Broughtons Drain
Fantail Drain
Hill's Hills Drain
Proposed Site
Wellland Soke Dyke (1st District)
Soke Dyke (Cowbit Wash)
River Welland Soke Dyke
Cowbit Wash
No. 1 (Cowbit)
No. 2 (Cowbit)
New River (Cowbit)
Little London
Railway Delph
Little London Pipeline
Campbells Close
River Welland
Exeter Drain
Clay Lake
Burr Lane
Fen End
Barrier Bank
Millfield Nurseries
Sewage Pumping Station
The Conifers
Ash Holt
Elm Tree House
Locks Farm
Sluice Nursery
The Willows
Gate House
Greylands Works
Tomlin Ranch
520
0
0 Meters
B1172
Track
Drain
Drains
Nursery
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MAP 7



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LineStyle Architecture

PLANNING

Client: Country Court Care Group

Project Title: Proposed Care Home at Goodfellows School
Spalding Common, Spalding

Drawing Title: Site Location Plan

Scale 1:1250 @ A4 Date 17.12.2015 Project No. 0176 Drawing No. (10)001 Rev A00

www.linestyle.co.uk / design@linestyle.co.uk

Alan House, Clumber Street, Nottingham NG1 3ED, tel +44 (0)115 870 9913

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Key:

Existing tree to be retained

Proposed tree

Existing tree to be removed

Root protection area

Ground Floor
FFL 3.00m

Bin Store

Cycle parking

Existing building to be demolished

Vegetation

Tarmac

Grass

Wall Ht 1.0

Steps

Ivanhoe

Rdge 10.62

MH
CL 3.36
IL 1.96 (Silted)

MH
CL 3.27
IL 1.87 (Silted)

MH
CL 3.24
IL 2.20
(Silted)

MH
CL 3.06
UTL

MH
CL 2.55
UTL

Eave 7.86

11

12

SPALDING COMMON

LineStyle Architecture

DRAFT

Client: Country Court Care Ltd

Project Title: Proposed care home at Goodfellows School, Spalding Common, Spalding

Drawing Title: Proposed Site Plan

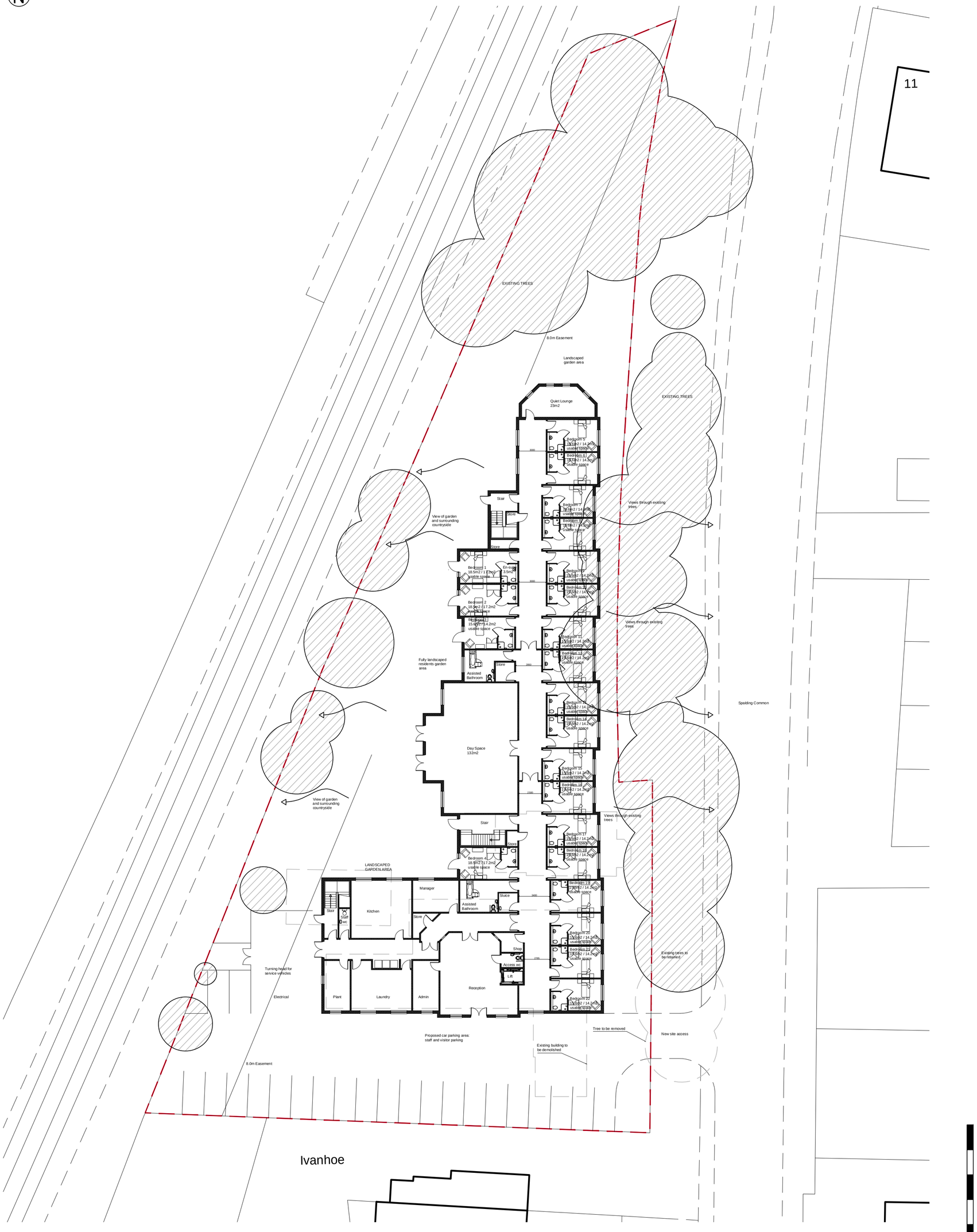
Scale 1:200 @ A1 Date 14.12.2015 Project No. 0074 Drawing No. (10)002 Rev A00

www.linestyle.co.uk / design@linestyle.co.uk

Alan House, Clumber Street, Nottingham NG1 3ED, tel +44 (0)115 870 9913

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LineStyle Architecture

COMMENT

Client: Country Court Care Ltd

Project Title: Proposed care home at Goodfellows School, Spalding Common, Spalding

Drawing Title: Proposed Site Plan

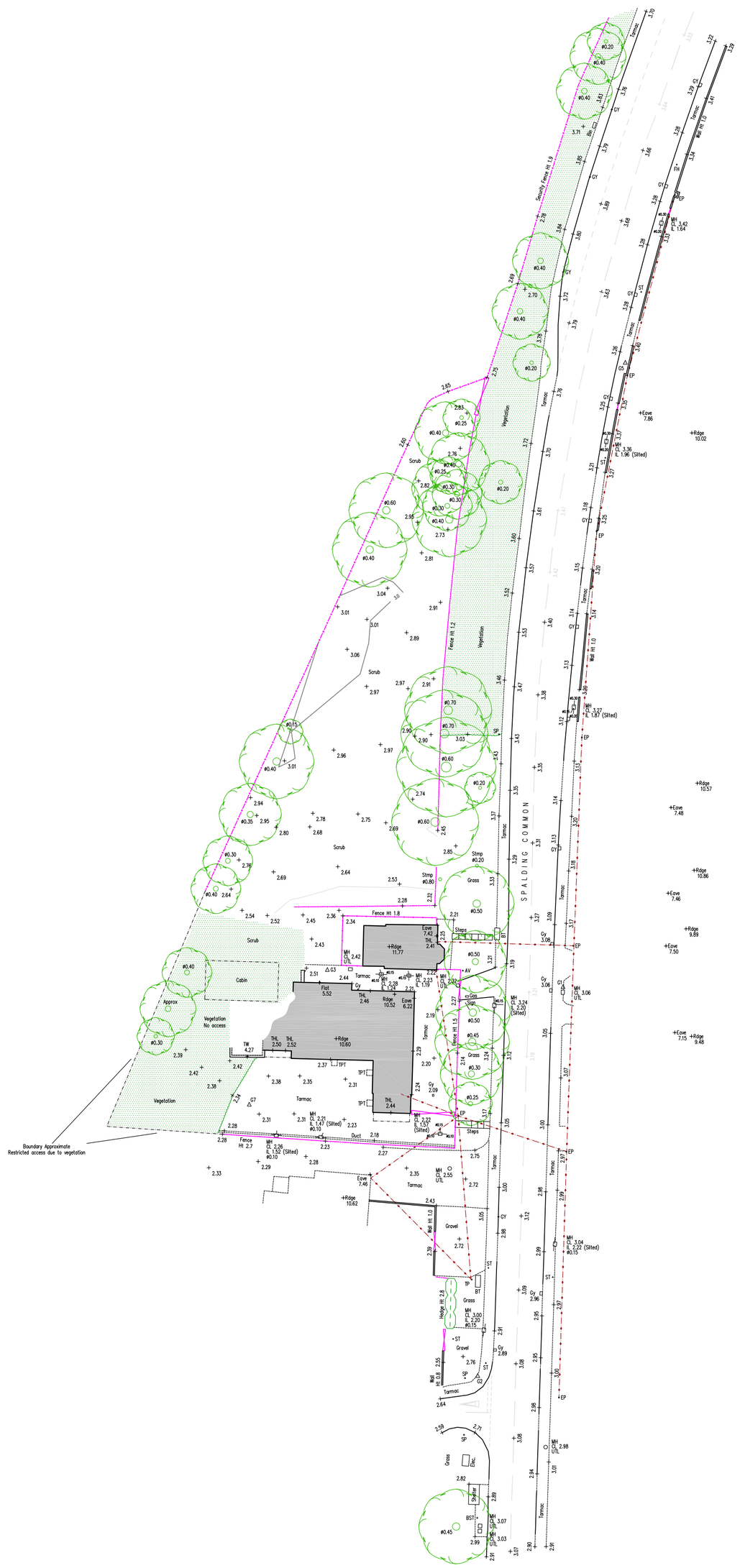
Scale 1:200 @ A2 Date 12.12.2014 Project No. 0074 Drawing No. (10)003 Rev A00

PLAN 2

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A1

PLAN 5

This survey has been produced at the survey scale detailed below with its accuracy consummate with the indicated scale and should only be used for its original intended purpose. Any scaling should only be undertaken using a stable media print produced using the original data. The plotted scale may differ (for presentation purposes) from the survey scale.

It is for the use only of the party to whom it has been addressed and no responsibility is accepted to any third party for the whole or part of its contents. This survey has been prepared on the basis that all information and facts, which may affect the survey, have been disclosed to BluePlan Surveys Limited by all parties concerned and no liability, nor responsibility can be accepted, unless full disclosure has been made.

All ground features that were visible at the time of the survey have been located, however there may have been items obscured. Pipe sizes and flow direction have been visually assessed from the surface and should be considered as approximate only.

All data remains in the ownership of BluePlan Surveys Limited and any discrepancies between this survey and any other information should be reported to BluePlan.

Abbreviations

(where applicable)

AV	Air Valve	ME	Meter Manhole
BB	Bellisha Beacon	MH	Manhole
BC	Building Canopy	MK	Marker
BH	Borehole	MS	Multi-Stem (Tree)
BL	Bed Level	MY	Mercury Manhole
BM	Bench Mark	NB	Notice Board
BDY	Boundary	RNB	Road Name Board
BO	Bollard	P	Post
BS	Bi-Stem (Tree)	PED	Pedestrian Pad
BST	Bus Stop	PI	Pipe
BT	British Telecom Manhole	PM	Parking Meter
CE	Cat's Eye	PP	Power Point
CCTV	Closed Circuit Television	RE	Rodding Eye
CR	Cycle Rack	RTW	Retaining Wall
CTV	Cable Television Manhole	RWP	Rainwater Pipe
CUL	Culvert	SP	Sign Post
DK	Drop Kerb	SDP	Stand Pipe
DP	Drain Pipe	SK	Soakaway
DPC	Damp Proof Course	SO	Soffit Level
D	Drain	ST	Stop Tap
DCP	Dynamic Cone Penetrometer	SU	Stump (Tree)
DWB	Dog Waste Bin	SV	Stop Valve
EB	Electricity Box	SVP	Soil Vent Pipe
EL	Electricity Manhole	SW	Storm Water
EP	Electricity Pole	SY	Stay (e.g. Pylon, TP)
ER	Earthing Rod	TBM	Temporary Benchmark
FFL	Finished Floor Level	TCB	Telephone Call Box
IFL	Floor Level	TH	Threshold Level
FP	Flag Pole	TL	Traffic Light
GV	Gas Valve	TW	Top of Wall
GP	Gate Post	TP	Telegraph Pole
GS	Gravestone	TPT	Trial Pit
GY	Gully	TS	Traffic Signal Manhole
FH	Hydrant	UB	Under Beam
IC	Inspection Chamber	UTL	Unable To Lift
IS	Information Sign	VP	Vent Pipe
IT	Intercom	WCL	Window Cill Level
JTN	Junction Box	WHL	Window Head Level
KO	Kerb Outlet	WL	Water Level
LP	Lamp Post	WM	Water Meter

Survey Control

Station	Easting	Northing	Level
G1	523336.843	320437.744	3.057
G2	523323.173	320375.359	2.828
G3	523299.051	320440.488	2.448
G5	523346.837	320537.884	3.368
G7	523286.538	320418.877	2.325

Grid & Datum

Grid: Local Grid ☐ Nat. Grid (OSGB36) ■ Nat. Grid (Graph. Pt) ☐ Existing Grid ☐

Datum: Local Datum ☐ Nat. Grid (OSGB36) ■ Nat. Grid (Spot Level) ☐ O.S.B.M. ☐

General Notes

1. Do not scale this drawing. All dimensions must be checked / verified on site. If in doubt ask.

2. All dimensions are in metres.

Rev	Date	Description	CAD
	23/12/14	Original Issue	

Client

Linestyle Architecture

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Regulated by the RICS

Location

Goodfellows School
Spalding
Lincolnshire

Title

Topographical Survey

Scale

Plotted Scale: 1:500
NB: Survey Scale: 1:500

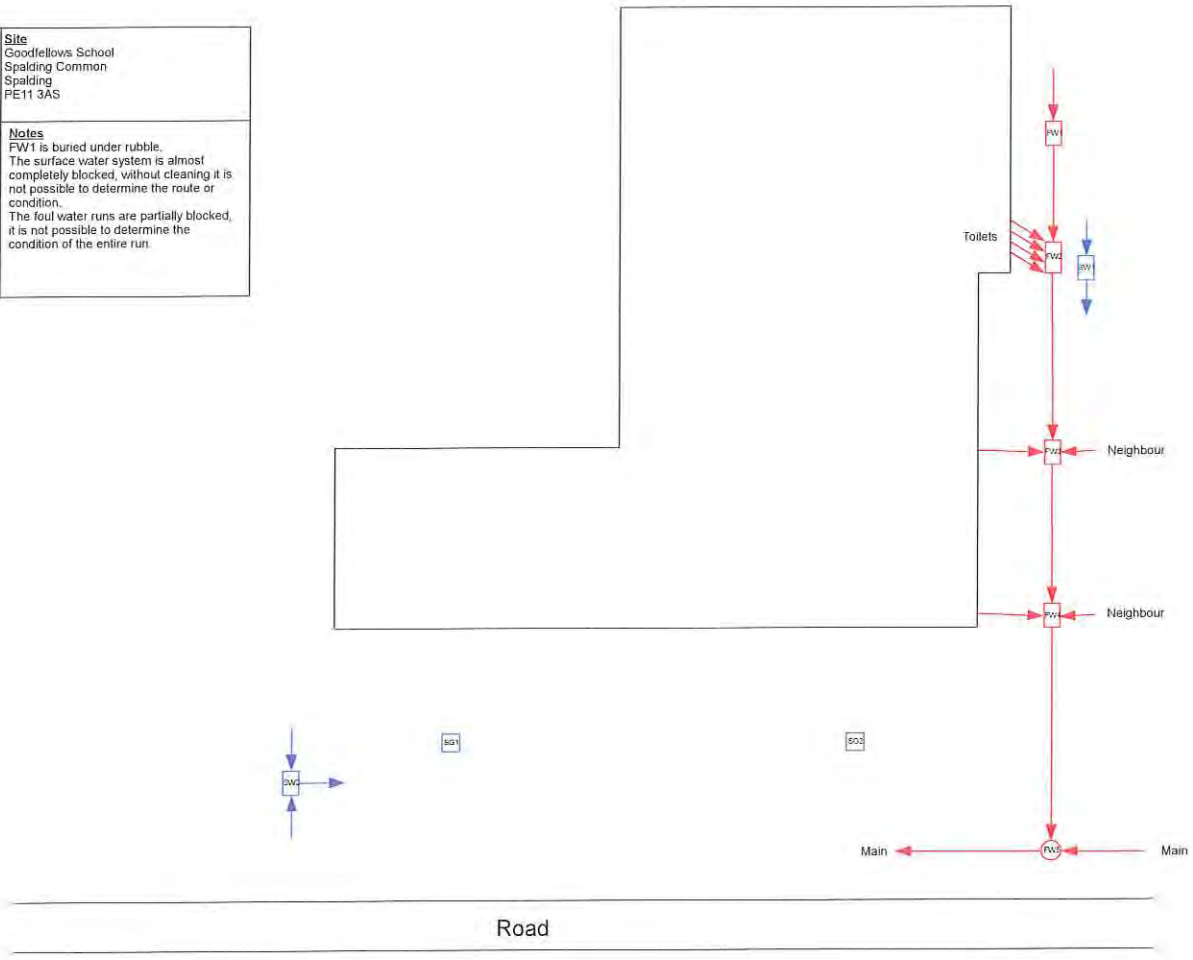
Surv:LS	CAD: LS	Checker: CM	Rev:-
Date: 15/12/14	Job No. 2019		

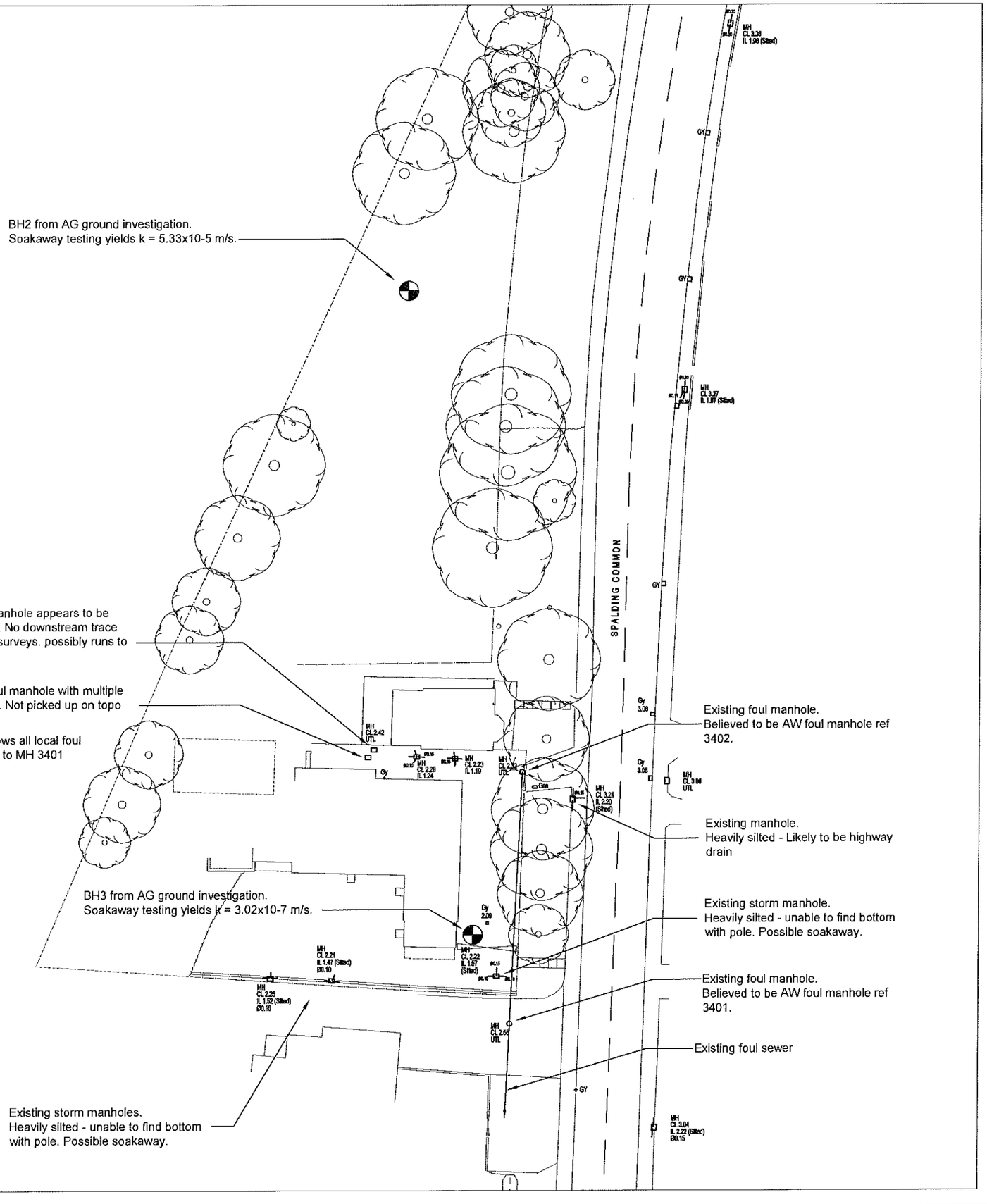
chartered ICES

ISO 9001 REGISTERED FIRM Certificate Number: GB

RICS

Customer	Site
Wynbrook **Survey Date** 24.04.2015	Goodfellows School Spalding Common Spalding PE11 3AS
Invert Depths FW1 – Buried. FW2 – 750mm. FW3 – 1060mm. FW4 – 1110mm. FW5 – 2000mm. SW1 – 450mm. SW2 – Blocked. FW= Foul Water SW= Surface Water SG= Surface Gully	**Notes** FW1 is buried under rubble. The surface water system is almost completely blocked, without cleaning it is not possible to determine the route or condition. The foul water runs are partially blocked, it is not possible to determine the condition of the entire run.





Rev.	By	Date	Details	Chkd
Drawing Status			Information	

Construction Design Solutions
Consulting Civil, Structural, Highway & Drainage Engineers
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Tel: 0115 922 9491
Fax: 0115 922 7451
General E-mail: design @ cdsconsulting . co . uk
Website: www . cdsconsulting . co . uk

Client
Country Court Care

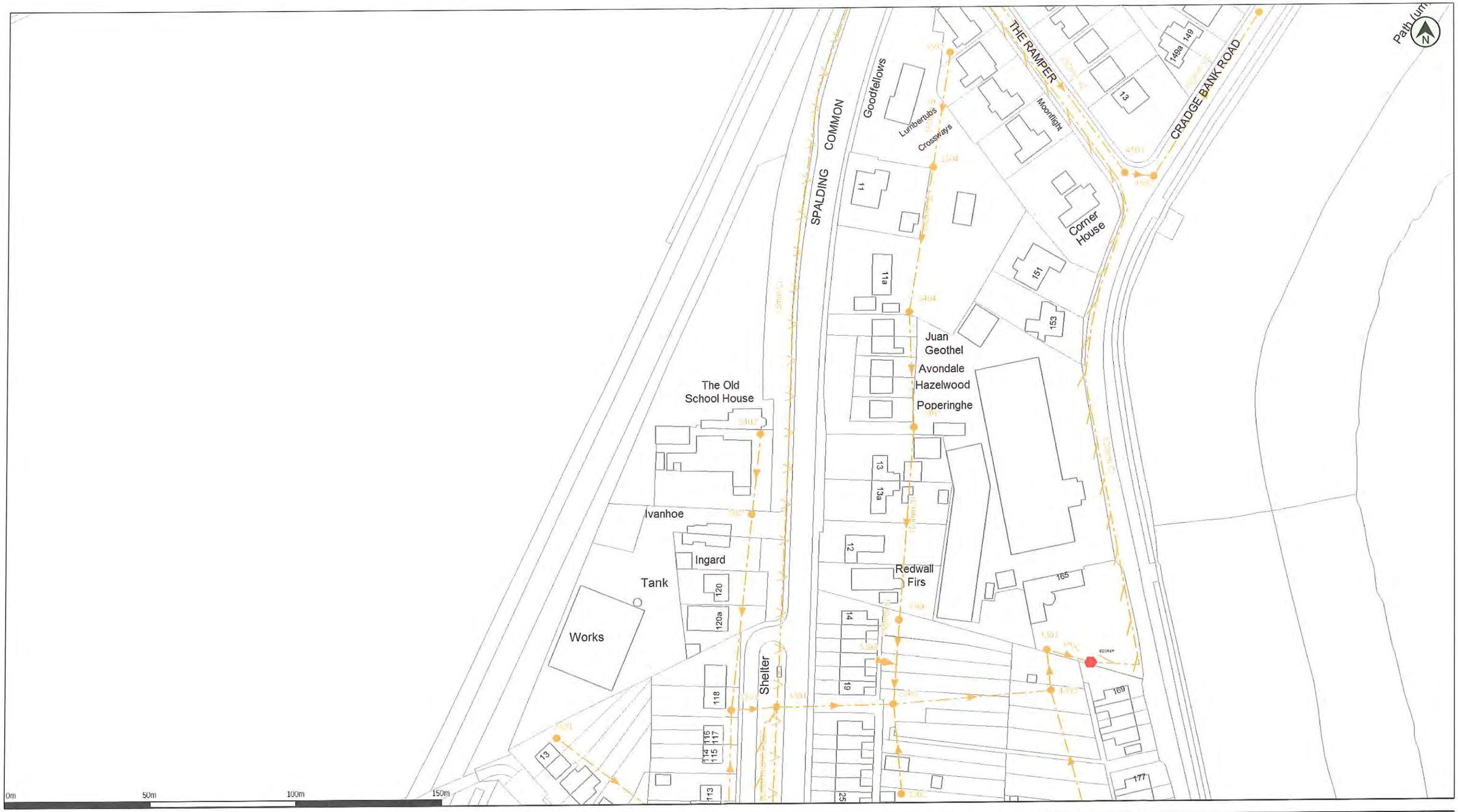
Project
Proposed Care Home
Spalding Common

Title
Existing Drainage Notes

Scale (A3)	Drawn by.	Drg. No.
1/500	SN	2014.5563.SK01
Date. Jun 2015	Checked by.	

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PLAN 6



(c) Crown Copyright and database rights 2014 Ordnance Survey 100022432 Date: 20/05/15 Scale: 1:1250 Map Centre: 523306,320448 Data updated: 01/05/15 Our Ref: 141997 - 1 Wastewater Plan A3

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. The plan is produced by Anglian Water Services Limited from Ordnance Survey © Crown Copyright, 100022432. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent
- Rising Main (Colour denotes effluent type)
- Private Sewer (Colour denotes effluent type)
- Decommissioned Sewer (Colour denotes effluent type)
- Outfall (Colour denotes effluent type)
- Inlet (Colour denotes effluent type)
- Manhole (Colour denotes effluent type)
- Sewage Treatment Works
- Pumping Station

steve.nicoll@cdsconsulting.co.uk

Spalding Common

love every drop anglianwater

PLAN 7

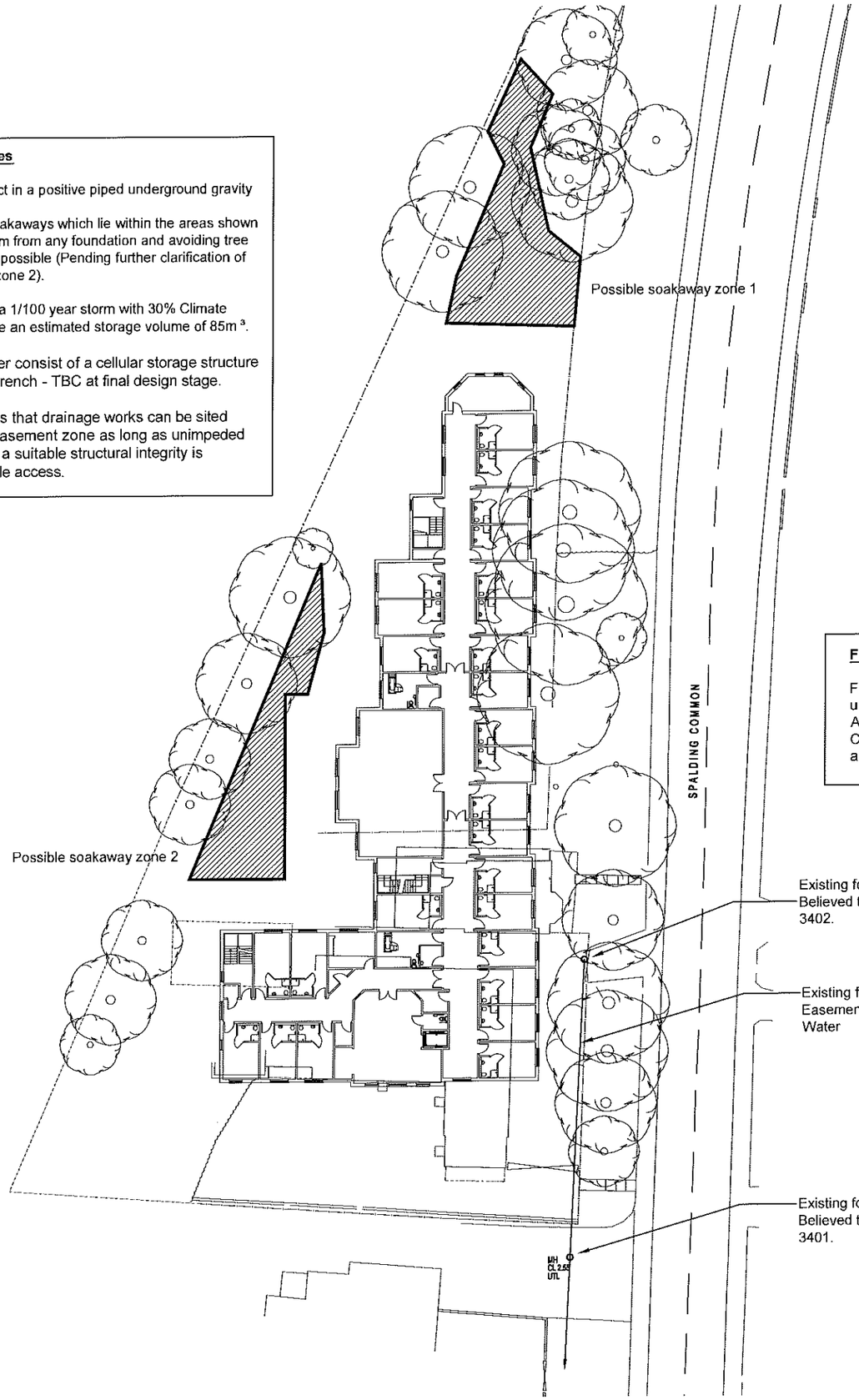
Storm Drainage Notes

Storm water will collect in a positive piped underground gravity system.
This will run to two soakaways which lie within the areas shown as Zones 1 & 2. i.e. 5m from any foundation and avoiding tree canopies as much as possible (Pending further clarification of ground conditions in zone 2).

Initial calculations for a 1/100 year storm with 30% Climate change allowance give an estimated storage volume of 85m ^{3}.

Soakaways will either consist of a cellular storage structure or wide stone filled trench - TBC at final design stage.

This design assumes that drainage works can be sited within the Railway easement zone as long as unimpeded access is given and a suitable structural integrity is maintained for vehicle access.



Foul Drainage Notes

Foul water will collect in a positive piped underground gravity system and connect to AW manhole 3402 using existing inlets. Connection to be made under Section 106 agreement.

Rev.	By	Date	Details	Chkd
Drawing Status			Information	

Construction Design Solutions
Consulting Civil, Structural, Highway & Drainage Engineers
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Beeston,
Nottingham.
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Fax: 0115 922 7451
General E-mail: design @ cdsconsulting . co . uk
Website: www . cdsconsulting . co . uk

Client
Country Court Care

Project
Proposed Care Home
Spalding Common

Title
Proposed Drainage Philosophy

Scale (A3)	Drawn by.	Drg. No.
1/500	SN	2014.5563.SK02
Date. Jun 2015	Checked by.	

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